

MYCOLOGIA

VOL. VIII

NOVEMBER, 1916

No. 6

FUNGI COLLECTED AT ARKVILLE, NEW YORK

WILLIAM A. MURRILL

While spending a vacation of two weeks at Arkville, August 6-20, 1916, I took daily excursions into the surrounding forests and secured a very representative collection of the fleshy fungous flora of the region for that season of the year. If a similar collection could be secured during late September, many other species, particularly in the rusty-spored and brown-spored groups, would undoubtedly be added to the list here published.

Arkville is a small village in the edge of Delaware County at the southwest corner of the Catskill region. Mt. Pakatakan, 3,000 feet above sea-level, overlooks the village on the south, while a lower range called the Hogback rises precipitously to the north. The headwaters of the Delaware River are in these and neighboring mountains, the elevation of the valleys around Arkville being about 1,400 feet. Arkville is interesting to many botanists in New York City because it is included within the local flora range.

The principal forest trees of the region are hemlock, sugar maple, beech, yellow birch, butternut, white elm, ash, hop hornbeam, linden, red maple, and aspen. A few chestnuts are found on Hogback, but these will soon be exterminated by the canker, which is spreading rapidly through the Catskills from the Ashokan Reservoir region. Several of the aspens were found to be seriously attacked by the poplar canker. A local wood alcohol plant consumes fifteen cords of wood daily. Practically all the

[MYCOLOGIA for September (8: 231-292) was issued September 14, 1916.]

north side of Mt. Pakatakan has been denuded of its original forests, but on some small estates near the base of the mountain and in a few deep ravines stretches of virgin timber remain which contain old beeches and sugar maples and hemlocks of unusual size.

In comparing the forests about Arkville with those of Lake Placid and the Upper St. Regis, the most striking difference is the absence in the Arkville region of balsam and spruce and all other conifers except hemlock, and the relatively greater abundance of deciduous trees. This would indicate the absence of certain fungous elements which are common in the Adirondacks and a larger proportion of species found about New York City. It may well be true that the fungous flora of the Catskills taken as a whole is very similar to that of the Adirondacks, but this general statement would hardly apply to Arkville without modification. Peck's Catskill collections were mostly obtained from Phoenicia, Tannersville, Haines Falls, Summit, and neighboring stations in the eastern part of the Catskills.

If sphagnum bogs occur at Arkville, I did not happen to find one, but there is a remarkable development of *Polytrichum commune* on Hogback, where many species of *Hygrophorus* and other species of moss-loving fungi were found. *Clavaria fusiformis* occurred there in much greater abundance than I have ever before seen it.

Mrs. Margaret H. Newton, of the Pakatakan Inn, where Mrs. Murrill and I established our headquarters, very generously afforded us every facility for drying and caring for the specimens, while a large number of the guests became interested in hunting for fungi and aided us materially in building up the collection. The following deserve special mention and our best thanks: Miss Clara Grass, Miss Margaret Grass, Miss Lisetta Arlitz, Miss Marian Forsyth, Miss M. E. McOuat, Mr. Gerald Taber, Mr. James Hopkins, Mr. Marvin Tappan, Fraulein Fuchs, Mr. and Mrs. Charles Petrie, Mrs. Clark, Miss Wiggins, Miss Eleanor Browning, Miss Martha Harlow, Miss Shannon, and Miss Marguerite Budd.

In the following list, the abundance of a given species as observed during my stay at Arkville is indicated by an exponent, the

numerals 1-5 denoting a definite number of times collected and the letters *n*, *nn*, and *nnn* meaning "frequent," "common," and "very common," respectively. Critical species of *Marasmius* were referred to Dr. Pennington and the discomycetes to Dr. Seaver for determination.

A. ASCOMYCETES

<i>Ciboria nebulosa</i> ¹	<i>Leotia lubrica</i> ²
<i>Cudonia lutea</i> ²	<i>Macropodia macropus</i> ²
<i>Cytospora chrysosperma</i> ¹	<i>Macropodia fuscicarpa</i> ¹
<i>Daldinia concentrica</i> ³	<i>Microglossum rufum</i> ²
<i>Galactinia succosa</i> ¹ ?	<i>Neotiella albocincta</i> ¹
<i>Helotium citrinum</i> ⁿ	<i>Otidea alutacea</i> ¹ ?
<i>Hypomyces apiculatus</i> ¹	<i>Peziza repanda</i> ¹
<i>Hypomyces hyalinus</i> ⁿ	<i>Podostroma alutacea</i> ¹
<i>Hypomyces lactifluorum</i> ⁿ	<i>Tapesia fusca</i> ¹
<i>Lachnea lusitiae</i> ¹	<i>Xylaria Hypoxylon</i> ⁿ
<i>Lachnea scutellata</i> ⁿ	<i>Xylaria polymorpha</i> ⁿ
<i>Lasiosphaeria hispida</i> ¹	

B. HYMENOMYCETES

(a) TREMELLALES

- Gyrocephalus rufus*¹. On leaf-mold in a forest road.
*Tremella lutescens*²
*Tremellodon gelatinosum*³

(b) AGARICALES

1. Thelephoraceae

- Craterellus Cantharellus*¹. Found in large quantity near West Hurley by Miss M. E. McOuat, but not seen at Arkville. The odor on drying is similar to that of *Chanterel Chantarellus*.
*Craterellus cornucopioides*²
*Lachnocladium Micheneri*³
*Lachnocladium Schweinitzii*ⁿ
*Peniophora cinerea*ⁿ
*Stereum lobatum*²
*Stereum rugosum*¹. On a sugar maple log.
*Stereum sericeum*ⁿ

2. Clavariaceae

- Clavaria cristata*ⁿ
*Clavaria fusiformis*ⁿⁿⁿ. Abundant in *Polytrichum commune* and other mosses on Hogback.
*Clavaria Kunzei*ⁿ? A delicate, pure-white species found in hair-cap moss. Dr. Coker says this is labeled *C. Kunzei* at Albany, but that European specimens appear different.
*Physalacria inflata*²

3. Hydnaceae

*Hydnum repandum*ⁿⁿ

4. Polyporaceae

*Bjerkandera adusta*ⁿ

*Cerrena unicolor*ⁿ

*Coltricia cinnamomea*³

*Coltricia perennis*⁴

*Coriolus abietinus*ⁿ

*Coriolus nigromarginatus*ⁿ

*Coriolus versicolor*ⁿⁿⁿ

*Daedalea confragosa*ⁿ

*Elfevingia fomentaria*ⁿ. On aspen, as well as on beech and birch.

*Elfevingia megaloma*ⁿⁿ

*Fomes populinus*². Found once on sugar maple and once on beech, the latter tree being a very rare host.

*Fomes unguatus*ⁿ

*Ganoderma Tsugae*ⁿⁿ.

*Gloeophyllum hirsutum*ⁿⁿ

*Grifola Berkeleyi*¹. A single large cluster was found by Mrs. Clark. A few red oaks occur at Arkville and this tree was probably the host.

*Hapalopilus rutilans*¹

*Hexagona alveolaris*ⁿ

*Hexagona striatula*³

*Irpiciporus lacteus*ⁿ

*Lenzites betulina*¹

*Polyporus elegans*ⁿ

*Polyporus fagicola*¹. On a fallen beech limb in woods. More than twice as large as the type specimen found on the top of a beech log in Maine, and not showing a radial arrangement of fibrils. This is the second time the species has been collected.

Poronidulus conchifer. On fallen elm branches.

*Pycnoporus cinnabarinus*¹

*Pyropolyporus conchatus*¹. On a sugar maple log.

*Pyropolyporus ignarius*¹. On hop hornbeam, butternut, and elm, but not seen either on birch or beech.

*Tyromyces chioneus*³

*Tyromyces guttulatus*¹. On a hemlock log.

*Tyromyces semipileatus*ⁿ

5. Boletaceae

*Boletinus porosus*¹. In a moist forest road on Mt. Pakatakan at about 2,000 ft. elevation.

*Ceromyces bicolor*²

*Ceromyces communis*ⁿ

*Ceromyces illudens*¹

*Ceromyces retipes*ⁿⁿ. Only the typical yellow form was found.

*Ceromyces viscidus*¹

*Gyroporus castaneus*ⁿ

*Gyroporus cyanescens*¹. On a roadside bank in a rather exposed position.

*Strobilomyces strobilaceus*ⁿ

*Suilellus luridus*ⁿ*Tylopilus felleus*ⁿ*Tylopilus gracilis*¹

6. Agaricaceae

Twenty or more rosy-spored species and a dozen with rusty spores are not listed here because these groups are being overhauled for *North American Flora*.

*Agaricus campestris*ⁿⁿ. This species is usually common in the meadows about Arkville in September. It had not yet appeared when I was there.

*Agaricus placomyces*¹*Camarophyllus basidiosus*¹*Camarophyllus Cantharellus*ⁿ*Camarophyllus pallidus*¹*Chanterel Chantarellus*²*Chanterel floccosus*¹

*Chanterel infundibuliformis*¹. Found in great abundance on a hillside in beech and sugar maple woods. This variety was very dark, resembling *Craterellus cornucopioides* both in form and color, but having distinct lamellae.

*Clitocybe adirondackensis*²*Clitocybe eccentrica*¹*Clitocybe infundibuliformis*ⁿ*Clitocybe lactariiiformis*²

*Coprinus atramentarius silvestris*². This species occurred at the base of sugar maples in woods.

*Coprinus micaceus*³*Cortinarius armillatus*¹*Cortinarius semisanguineus*¹

*Crepidotus ostreatus*ⁿ. A quantity was found on a single sugar maple stump sufficient to serve twenty persons at lunch.

*Crepidotus calolepis*¹*Galactopus succosus*²*Galera Hypnorum*²*Galera tener*³*Geopetalum* sp.*Gymnopus chrysopheplus*²*Gymnopus dryophilus*ⁿ*Gymnopus myriadophyllus*¹*Gymnopus oculus*¹*Gymnopus platyphyllus*ⁿ

*Gymnopus radicans*ⁿⁿⁿ. All forms of this species were represented. Beech seems to be its favorite tree.

*Hydrocybe ceracea*ⁿ*Hydrocybe chlorophana*ⁿ*Hydrocybe flammea*ⁿ*Hydrocybe lacta*ⁿ*Hydrocybe miniata*ⁿ*Hydrocybe nitida*¹*Hydrocybe Peckii*¹*Hydrocybe punicea*¹

Hypholoma appendiculatum^{b?} On fallen branches in woods.

Inocybe spp. Only a half dozen or more species were found. *Inocybe geophylla* was collected twice.

*Laccaria laccata*⁴

*Laccaria striatula*³

*Lactaria cinerea*³

*Lactaria Hibbardae*²

*Lactaria hygrophoroides*ⁿⁿ

*Lactaria lactiflua*²

*Lactaria lignyota*¹

*Lactaria piperata*ⁿⁿⁿ. Frequently parasitized by *Hypomyces Lactiflorum*.

*Lactaria subdulcis*ⁿ

*Lentinus carneotomentosus*¹

*Marasmius alliatus*²

*Marasmius caryophylleus*³

*Marasmius confluentis*ⁿ

*Marasmius delectans*²

*Marasmius dichrous*²

*Marasmius foetidus*³

*Marasmius glabellus*²

*Marasmius resinosis*ⁿⁿ

*Marasmius rotula*ⁿⁿⁿ

*Marasmius siccus*ⁿ

*Marasmius subnudus*¹

*Melanoleuca albissima*ⁿ. Growing in large groups under hemlocks. The specimens were invariably bitter.

*Melanoleuca alboflavida*¹. In an open field. The single specimen found is not typical, having points in common with *M. melaleuca*.

*Melanoleuca melaleuca*¹

*Omphalina chrysophylla*¹

*Omphalopsis campanella*ⁿⁿ

*Omphalopsis fibula*²

*Panaeolus campanulatus*². In pastures.

*Panellus stypticus*¹

*Paxillus involutus*¹. The unusual scarcity of this species may have been due to the season. Very few rusty-spored agarics of any kind were found during my stay.

*Phylloporus rhodoxanthus*¹

*Pleurotus dimidiatus*¹. In a hollow sugar maple stump.

*Prunulus cyaneobasis*¹

*Prunulus Leianus*¹

*Russula bifida*ⁿⁿ. Found especially under beech trees. The color varied from green to dark-mottled-greenish, and the lamellae were conspicuously forked.

*Russula brunneola*¹

*Russula chamaeleontina*²

*Russula emetica*ⁿ

Russula, near *R. flava*ⁿⁿ. This beautiful yellow species occurred abundantly under beech trees.

- Russula foetens*ⁿⁿⁿ. Especially under beech trees, occurring in large groups.
*Russula granulata*¹
*Russula Mariae*ⁿⁿⁿ
*Russula ochroleuca*¹
*Russula pectinata*¹
*Russula stricta*¹
*Russula subusta*¹
*Russula uncialis*¹
*Russula*ⁿⁿⁿ red, under beech, becoming somewhat acrid.
*Schizophyllum alneus*ⁿ
*Stropharia semiglobata*²
*Vaginata plumbea*ⁿⁿ. The gray and yellow forms were equally common.
*Vaginata plumbea strangulata*³. No intermediates were found between this and the gray form of *V. plumbea*.
*Venenarius Frostianus*ⁿⁿⁿ. The slender and robust forms were both common under beech trees.
*Venenarius muscarius*¹
*Venenarius phalloides*ⁿ. The white and umbrinous forms were equally common.
*Venenarius rubens*ⁿ. Under beeches and sugar maples. Often parasitized by *Hypomyces hyalinus*.
*Venenarius solitarius*¹. A single specimen was found of the form described as *Amanita onusta*.

C. GASTEROMYCETES

Puffballs were not abundant, except *Scleroderma aurantium*, the hard-skinned puffball.

- Bovista pila*¹
*Crucibulum vulgare*¹
*Geaster saccatus*¹. On a much decayed log.
*Lycoperdon gemmatum*¹
*Lycoperdon separans*². Grassy places in the open.
*Lycoperdon subincarnatum*³
*Nidularia pisiformis*¹. On a fallen dead branch.
*Scleroderma aurantium*ⁿⁿⁿ. Abundant under all kinds of trees.

PRINCIPAL POISONOUS AND BITTER SPECIES COLLECTED

- | | |
|-------------------------------|------------------------------|
| <i>Melanoleuca albissima</i> | <i>Russula foetens</i> |
| <i>Panaeolus campanulatus</i> | <i>Suillus luridus</i> |
| <i>Panellus stipticus</i> | <i>Tylopilus felleus</i> |
| <i>Russula emetica</i> | <i>Venenarius muscarius</i> |
| | <i>Venenarius phalloides</i> |

NEW YORK BOTANICAL GARDEN.

DOTHICHIZA POPULEA IN THE UNITED STATES

GEORGE G. HEDGCOCK AND N. REX HUNT

(WITH PLATES 194 AND 195, CONTAINING 6 FIGURES)

A NEW FUNGUS OUTBREAK IN THE UNITED STATES

The black poplar (*Populus nigra* L.), especially the variety known as the Lombardy poplar, is one of our most beautiful ornamental trees. It is, however, subject to diseases which shorten its life. In the United States these diseases apparently have not been studied to any extent, as there is a lack of literature on the subject. During the spring of 1916, many reports were received by the United States Department of Agriculture concerning a serious blight of newly transplanted black poplars. In one instance, every tree in a lot of thirty was killed back by cankers. In a second instance, nearly all of 630 trees were badly infected with cankers, and at least one fourth of them were killed back to the point of the infection.

An examination of cankers from the trees mentioned above and from other localities showed that in a great majority of cases only one fungus was present in the cankers. This fungus has been isolated and studied. Morphologically it is identical with *Dothichiza populea* Sacc. & Briard.

A number of nurseries in the eastern United States have been examined with reference to the presence of this disease. In some instances, varieties of the black poplar were found very much diseased, thus accounting for the specially bad outbreak among recently transplanted nursery stock. It was also ascertained that in a number of localities adjacent to the infected nurseries nearly all the black poplars and some of the Canada poplars, or cottonwoods (*Populus deltoides* Marsh), had been attacked by the disease.

At the same time a hasty preliminary survey was made of several localities for the presence of the disease on poplars planted

for shade or ornament. In some of these localities, black poplars, mostly recently planted, were found to be seriously diseased. In three cases only, a few large trees were found, not only of the black but also of the Canada poplar, which had apparently been diseased for several years. A future study of the cankered areas on the trunks of these trees will probably establish approximately the date of their formation.

In 1915 two specimens of diseased black poplar were sent by Joseph L. Richards to the Plant-Disease Survey of the Department of Agriculture, one from West Lynn, Mass., and the other from Hanover, N. H. Both specimens have since proved to be attacked by *Dothichiza populea*. Mr. Richards reported a badly diseased condition of poplars in both localities in 1915.

EARLIER OUTBREAKS OF THE FUNGUS IN EUROPE

Dothichiza populea was first described and named in 1884 by Saccardo and Briard (4: 672),¹ who reported the fungus as occurring as a saprophyte on the dead branches of *Populus* at Troyes, France.

Krieger² later distributed specimens of *Dothichiza populea* collected on limbs of *Populus nigra* near Königsten, Saxony, March 28, 1893, one of which has been examined by the writers.

Delacroix (1), in 1903, was the first to make a careful study of *Dothichiza populea* and to note its real effect on poplars. He not only ascertained that the fungus was parasitic in its nature, but also that it was the cause of a serious disease in France. Among the varieties of poplars attacked, he mentions *Populus virginiana* (a synonym for *Populus deltoides*), *Populus nigra*, and *Populus bolleana*. The disease was found in a number of localities and had been observed for several years previous to the time of publication. In 1906 (2), he published an additional article on the disease, adding to the data on its distribution and to the knowledge of the fungus, at the same time giving directions for its control.

Voglino, in 1907 (6: 193, 196), reported *Dothichiza populea*

¹ The figures in parentheses refer to "Literature cited" at the end of this paper.

² Krieger, K. W. *Fungi Saxonici Exsiccati*. No. 1100. Königstein.a.E., 1895.

as causing a disease of Canada poplars near Turin and in other localities in Italy. In 1910 (7: 285-287) and 1911 (8: 325-337) he published additional articles, which contain the results of a lengthy investigation of both the disease and its causal fungus. He reported proof both by cultural studies and by inoculations that *Dothichiza populea* Sacc. & Briard is the pycnidial form of the ascomycete *Cenangium populneum* (Pers.) Rehm. He found that the fungus is the cause of a very serious disease of poplars, especially the Canada poplar, in various parts of Italy.

From the foregoing data, it appears quite possible that *Dothichiza populea* has been imported, though not very recently. A great quantity of nursery stock has been brought to this country from Europe, and the fungus could easily have been brought in previous to the enforcement of the present inspection laws.

On the other hand, the fact that this disease has not been reported previously from this country by any of the state pathologists and that earlier specimens of *Dothichiza populea* have not been collected by the pathologists of the United States Department of Agriculture indicates that it is a somewhat recent disease in the United States.

This assumption is further strengthened by the absence of *Dothichiza populea* from the exsiccata that have been collected in this country and the fact that there is apparently no mention of it in our literature.

DESCRIPTION OF THE DISEASE CAUSED BY *DOTHICHIZA POPULEA*

Dothichiza populea attacks the trunk, limbs, and twigs of both the black and the Canada poplars. It primarily causes the formation of cankers, which at first appear as depressed, slightly darkened areas in the bark, usually on the trunk around the base of a small limb or twig (pl. 194, f. 2, 3). The cambium is killed and turns brown (pl. 195, f. 3). Pustules of the fungus soon appear on the canker, giving the surface a roughened appearance (pl. 194, f. 2, 3). In trees that have become well established in the soil a marked resistance of the host to the fungus frequently takes place. In such cases the growth of the fungus is checked, the canker limited to a small patch of varying shape and size, and the bark is frequently cracked at the edge of the canker by the

rapid growth of the cambium in the callus that is now formed (*pl. 194, f. 2*). As the canker becomes older, the bark sloughs off, leaving an open wound on the trunk, surrounded by apparently healthy bark. Meanwhile, the fungus attacks the limb or twig around the base of which the canker was formed, spreading very rapidly through it, forming pustules over a large portion of the bark.

Cankers much like those on the trunk are frequently formed on the lower limbs and twigs of diseased trees. On the larger limbs, their formation and appearance are much like those on the trunk. When the fungus attacks smaller limbs and twigs the canker usually extends around each limb or twig and very soon kills it (*pl. 194, f. 1*).

In trees recently transplanted and in trees heeled in for early planting in the spring, the fungus spreads most rapidly. Transplanted trees may become badly diseased by cankers formed from fresh infections between October and the following May (*pl. 195, f. 1, 2*).

Dothichiza populea is the most rapidly growing canker-producing fungus known to the writers. One canker selected from a number produced on black poplars between October, 1915, and May, 1916, was twelve inches long and encircled the trunk of the tree for nearly two thirds of the length of the canker. In the same lot of trees, out of 100 examined 90 were diseased either in limbs or trunk, 27 were girdled at the trunk by cankers which had killed the tops of the trees, and 13 more had distinct trunk cankers which had not yet encircled the trunks.

Dothichiza populea causes but slight outward discoloration of the bark in the cankers it produces, the color being slightly darker. The fruiting bodies (pycnidia) of the fungus are formed beneath the surface of the bark and cause marked elevations or pustules to appear on the cankers soon after they develop (*pl. 195, f. 1, 2*). These pustules are smooth on the surface at first and have the same color as the adjacent bark. At maturity they rupture near the center of the top and small cream-colored tendrils are exuded, which gradually assume a tawny olive to a walnut-brown color. These are composed of millions of pycnospores, which spread the disease to adjacent trees. According to

Delacroix, these spores are wind disseminated; but as they are in a somewhat sticky mass at first, insects or birds might carry them, as in the case of the chestnut-blight fungus (*Endothia parasitica* (Murrill) Anderson & Anderson) as reported by Heald and Studhalter (3), and Studhalter and Ruggles (5).

EFFECT OF THE DISEASE ON POPLARS

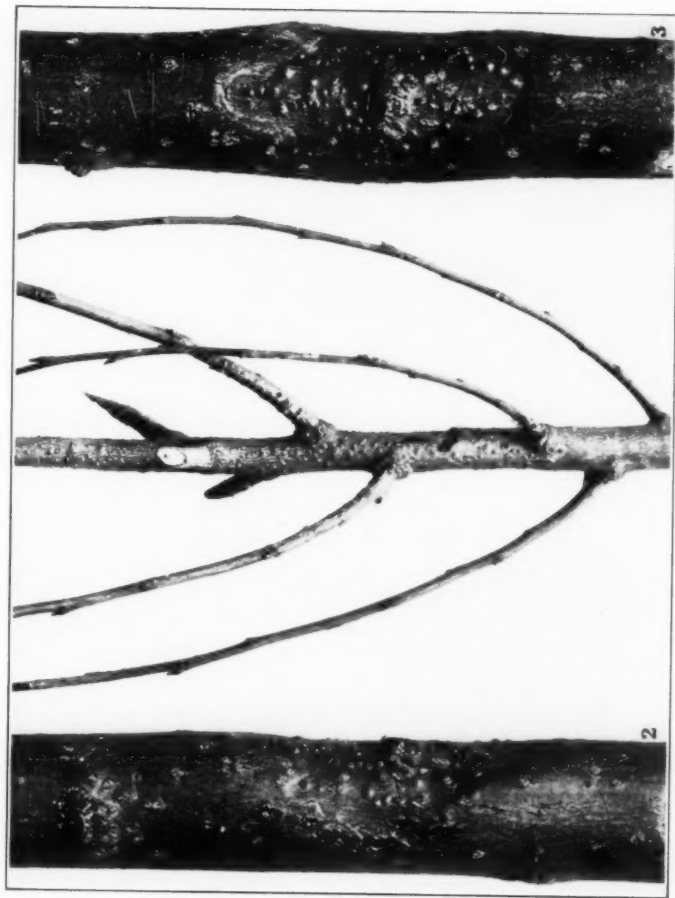
Dothichiza populea at first kills a few limbs here and there on younger trees in the nursery rows. The cankers on such trees, owing to the fact they are not conspicuous at first, are easily overlooked. When the disease becomes well established many of the lower limbs are killed and rapidly growing sprouts are sent up from the bases of the trees below the cankered areas. These sprouts, though vigorous, are soon infected by the fungus and are likely to be removed and used for cuttings, under the impression that they are healthy.

On older trees in nursery rows and on well-established shade trees the lower limbs are killed by the fungus and scars are soon formed by cankers on the trunks, which are thereby rendered unsightly. At the same time tufts or clusters of rapidly growing sprouts are sent out near or below diseased areas. These in turn are killed by the fungus, which gradually spreads to all parts of the tree, finally killing it.

In case of freshly transplanted trees, the disease is much more virulent. Cankers may encircle either the trunks or main limbs of the trees, killing them. In the case of black poplars, the beautiful tapering cone-shaped outline of the tree is destroyed. Trees once attacked apparently never recover their former beauty, even where the dead parts have been carefully removed.

In France, Delacroix (2) reports the disease as especially severe on nursery stock and younger trees and of less importance on old-established trees. There, as in the United States, it destroys the beauty of the black poplars. It also causes considerable loss to growers of Canada poplars who raise the trees for saw logs.

The disease in Europe is reported both by Delacroix (1, 2) and by Voglino (6, 7, and 8) as especially severe on Canada poplars, but in the United States, so far, it has been found in a serious form only on black poplars.



DOTHICHIZA POPULEA SACC. & BRIARD



DESCRIPTION OF THE FUNGUS

The following description of *Dothichiza populea* Sacc. & Briard is based on specimens from ten different collections from seven different states. The spore measurements are based on 100 spores, 10 from each collection.

Pycnidia, numerous in the bark, at first in pustules covered by the epidermis of the host, rupturing at the top when mature, the tops of the pustules later breaking away, leaving pseudo-acervuli, lens shaped to subspheroid before rupturing, often irregular in shape, $\frac{3}{4}$ to $1\frac{1}{2}$ mm. in diameter; walls black, with irregular surface at the base on the inside; spore masses ejected in cylindric tendrils, usually short, creamy to tawny olive or walnut brown in color; spores subglobose to ovoid, or rarely ellipsoid, smooth, hyaline when viewed singly, smoky in mass; $9.5-17 \times 6.7-12.7 \mu$, averaging $12.1 \times 8.6 \mu$; germinating at the smaller or basal end.

Spores of *Dothichiza populea* from No. 1100, Krieger, Fungi Saxonici Exsiccati, on *Populus nigra*, measure as follows: $10.1-12.2 \times 7.3-10.2 \mu$, averaging $11.6 \times 9.1 \mu$. It must be noted that these spores were measured from dried material mounted in water, while those on which our description is based contain the measurements from five fresh specimens, three partially dried specimens, and two thoroughly dried specimens. The dried specimens yielded slightly smaller measurements.

DISTRIBUTION OF THE FUNGUS

Dothichiza populea has been collected in the United States on the following hosts:

Populus nigra

New Hampshire: Hanover, by J. L. Richards, June, 1915 (P.D.S.³ 662).

Massachusetts: West Lynn, by J. L. Richards, June, 1915 (P.D.S. 611).

New Jersey: Morrisville, by George G. Hedgcock, June, 1916 (F.P.⁴ 22353).

Pennsylvania: Delaware Water Gap, by N. M. Goodyear, May, 1916 (F.P. 22362). By George G. Hedgcock in 1916, West

³ P.D.S., Plant-Disease Survey.

⁴ F.P., Forest Pathology.

Chester (F.P. 22369, 22370, 22371, 22372, and 22373); Frazer (F.P. 22374); Wayne (F.P. 22378); Wynnewood (F.P. 22381); Rosemont (F.P. 22382); Haverford (F.P. 22393); Allen Lane (F.P. 22391); Chestnut Hill (F.P. 22385, 22387); also by S. B. Detwiler (F.P. 22395).

Delaware: Wilmington, by G. S. Mattingly, May, 1916 (F.P. 22281); by George G. Hedgcock, June, 1916 (F.P. 22357, 22358, and 22359).

Maryland: Baltimore, by J. A. Byrne, May, 1916 (F.P. 20877); by George G. Hedgcock, May, 1916 (F.P. 22303).

Ohio: Cincinnati, by George G. Hedgcock, June, 1916 (F.P. 22316).

New Mexico: Estancia, by F. C. Werkenthin May, 1916 (F.P. 22363 and 22364).

Populus deltoides

In Pennsylvania: By George G. Hedgcock, June, 1910, Berwyn (F.P. 22377); Wayne (F.P. 22379); Chestnut Hill (F.P. 22388); Haverford (F.P. 22393).

From the foregoing, it will be seen that the fungus has been widely distributed in the United States, since its present known range is from New Hampshire to New Mexico. However, a preliminary survey indicates that many localities are free from the disease.

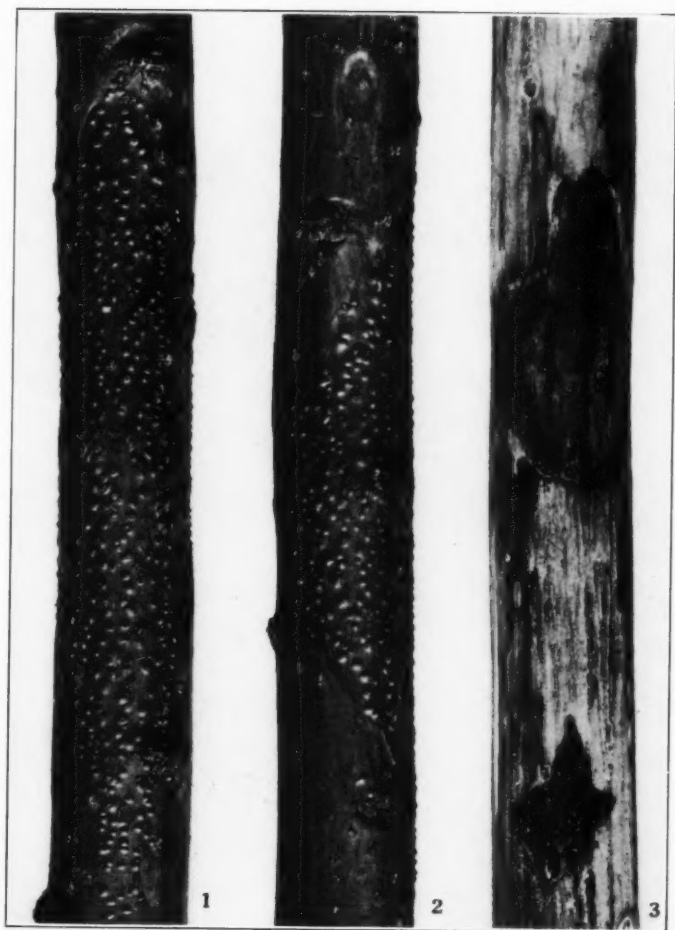
Dothichiza populea has been reported from Europe as follows:

In France, according to Delacroix (1), *Dothichiza populea* was well established as early as 1903. He reported it at that time in Monterau (Seine et Marne), Villeneuve-la-Guyard (Yonne), Montauban, Agen, and Paris.

In Italy, according to Voglino (8), Cavaglia in 1901-1902 noted cankers, apparently caused by *Dothichiza populea*, on Canada poplars near Santena. In 1906 Zoppa noted the disease near Crema. In 1907 Voglino, in addition to the localities previously mentioned, received numerous reports of the disease from various regions in Italy, as well as from Sardinia and from Switzerland.

In Germany no outbreaks of the disease have been reported.

The writers so far have not found *Cenangium populneum* (Pers.) Rehm on poplars in the territory investigated, either



DOTHICHIZA POPULEA SACC. & BRIARD

alone or in association with *Dothichiza populea* Sacc. & Briard. The relationship of the two fungi in the United States will be made the subject of further investigation. It has, however, been collected on *Populus tremuloides* as follows: At Middlebury, Vt., by E. A. Burt, April, 1896,⁵ and at Orono, Maine, by P. L. Ricker, May 14, 1898.⁶

SUGGESTIONS FOR THE CONTROL OF THE DISEASE

This disease apparently has its main centers of infection in our nurseries, and it is here that the first work of control should begin. All poplar trees that are blighted in the twigs or limbs or that show cankers should be dug out and burned. It will be better for the nurseryman to err on the side of caution than to allow this disease to gain a foothold in his nursery. A small infected twig on an otherwise healthy tree may infect all the trees in a bundle of transplants, and once infected the trees are ruined, as the fungus kills them back and spoils their beauty.

Poplars planted as ornamentals that become badly diseased should be dug up, removed, and burned. This treatment may seem to be severe, but in view of the fact that the disease appears to be a dangerous one it is the only safe course to pursue if it is to be exterminated. This disease has been under observation for a short time only, and no experiments for its control have been made.

Delacroix, among other suggestions, recommends the following treatment for the disease, but does not report its effect: The destruction of all diseased trees or diseased material; the disinfection of tools used in this work; the disinfection of the clothing and hands of workmen thus engaged; and the dipping of cuttings before planting in an acidulated Bordeaux mixture containing at least 10 per cent. of copper sulphate.

The writers would be glad to receive specimens of this and of other poplar diseases from as many localities as possible.

BUREAU OF PLANT INDUSTRY,
U. S. DEPARTMENT OF AGRICULTURE.

⁵ Ellis, J. B., and Everhart, B. M. North American Fungi. No. 3536. 1898.

⁶ Ricker, P. L. Flora of Maine. No. 388. 1898.

LITERATURE CITED

1. Delacroix, Georges, 1903. Sur le parasitisme de *Dothichiza populea* Sacc. et Briard sur diverses espèces de Peupliers. In *Bul. Soc. Mycol. France*, v. 19, fasc. 4, pp. 353-355, 3 figs.
2. ———, 1906. Une maladie du Peuplier de la Caroline. In *Bul. Mens. Off. Renseig. Agr. (Paris)*, t. 5, No. 11, pp. 1355-1363. Also in *Bul. Soc. Mycol. France*, v. 22, fasc. 4, pp. 239-252, 1 pl.
3. Heald, F. D., and Studhalter, R. A., 1914. Birds as carriers of the chestnut-blight fungus. In *Jour. Agr. Research*, v. 2, no. 6, pp. 405-422, 2 figs., pls. 38-39. Literature cited pp. 421-422.
4. Saccardo, P. A., 1884. *Sylloge Fungorum* . . . v. 3 Patavii.
5. Studhalter, R. A., and Ruggles, A. G., 1915. Insects as carriers of the chestnut-blight fungus. *Pa. Dept. Forestry Bul.* 12, 33 pp., 4 pls. Literature cited, pp. 28-32.
6. Voglino, Piero, 1907. I funghi parassiti delle piante osservati nella provincia di Torino e regioni vicine nel 1906. In *Ann. R. Accad. Agr. Torino*, v. 49, 1906, pp. 175-202.
7. ———, 1910. I parassiti delle piante osservati nella provincia di Torino e regioni vicine nel 1909. In *Ann. R. Accad. Agr. Torino*, v. 52, 1909, pp. 277-306.
8. ———, 1911. I nemici del Pioppo canadense di Santena. Nemici vegetali. In *Ann. R. Accad. Agr. Torino*, v. 53, 1910, pp. 325-377, figs. 1-4.

EXPLANATION OF PLATES

PLATE CXCV

FIG. 1. The top of a black poplar affected and killed by *Dothichiza populea*.

Fig. 2. Section of a trunk of a young black poplar recently transplanted, showing a young canker caused by *Dothichiza populea*. The fungus entered through a twig.

Fig. 3. Front view of the canker shown in f. 2.

PLATE CXCX

Fig. 1. Section of the trunk of a black poplar showing an older canker produced by *Dothichiza populea*.

Fig. 2. A canker still older than that shown in f. 1.

Fig. 3. A section of the trunk of a black poplar from which the bark has been peeled, showing two browned, dead areas caused by cankers of the fungus.

THE AECIAL STAGE OF COLEOSPORIUM RIBICOLA

W. H. LONG

On a recent field trip to Bear Canyon, located in the Sandia Mountains about twelve miles from Albuquerque, New Mexico, the writer found a *Peridermium* on the needles of piñon (*Pinus edulis*). The infected piñons were growing in close proximity to *Ribes leptanthum*, which is rather common near the bottoms of canyons. Several days later, a trip was made to Tejano Canyon, about twenty-eight miles from Albuquerque, where the *Peridermium* was again found on piñon in close association with *Ribes* plants.

Inoculations under control conditions were made on two species of *Ribes* from both of the collections. Sowings of aeciospores from the Bear Canyon material (F.P. 21164) were made April 29 on *Ribes leptanthum* and *R. longifolium*. On May 16 the uredinia of a *Coleosporium* appeared on the lower surface of the leaves of *R. leptanthum* (the *R. longifolium* plants which were inoculated damped off). Sowings of the aeciospores from the Tejano Canyon material (F.P. 21165) were made May 3 on *R. leptanthum* and *R. longifolium*. Uredinia appeared May 18 on the lower side of the leaves of both of the species of *Ribes* inoculated. The control plants of each set of inoculations remained free from the rust.

The *Coleosporium* obtained by inoculating the *Ribes* plants with the aeciospores of the *Peridermium* from piñon proved to be identical in all its characters with *Coleosporium ribicola* (E. & E.) Arthur. This infection of the *Ribes* leaves by the piñon *Peridermium*, thereby producing the typical uredinia of *C. ribicola*, proves that this *Peridermium* is the aecial stage of *C. ribicola* and should be called *Peridermium ribicola*.

A technical description of the aecial stage of this fungus is given below.

PERIDERMIMUM RIBICOLA

O. Pycnia amphigenous, scattered, sparse, low, conoidal, subcorticular, noticeable, dehiscent by a longitudinal slit, chestnut-brown, 0.5–1 mm. long by 0.3–0.5 mm. broad, about 100μ tall.

I. Aecia from a limited mycelium, amphigenous, one to several on each leaf, not forming spots on leaves, erumpent from a narrow slit, flattened laterally, 0.5 to 1 mm. long by 0.5 to 0.8 mm. high; peridium colorless, fragile, cells slightly or not at all overlapping, outer walls smooth to slightly granular, inner moderately verruculose, lower peridial cells elliptical, lanceolate or oval, 33–50 by 16–24 μ , walls 2–3 μ thick, upper peridial cells approximately isodiametric, irregularly orbicular, 18–30 μ across, walls 2–4 μ thick; aeciospores elliptical-oblong, oval or obovate, 20–28 \times 30–43 μ , average size for ten spores $23.7 \times 36.2\mu$; walls colorless, 2–3 μ thick, verrucose, with rather coarse irregular warts, which are tardily deciduous, without a smooth area on spore walls.

Both collections of *Peridermium ribicola* were made at an elevation of about 7,500 feet near the upper limit of the range of piñon in these two canyons (Bear and Tejano). Snow was still on the ground in the upper portion of the canyons and the ground was still frozen on some of the more protected slopes in the immediate vicinity of the infected piñons. The season was so early that a snow storm occurred while the writer was collecting the rust. Both collections had already discharged most of their spores. The above facts indicate that the peridia of this *Peridermium* were probably well developed before all of the snow had disappeared from under the piñons.

No indications of the aecial stage of this fungus were found below 6,500 feet elevation, although the piñon was still abundant.

The comparatively high altitude (for the aecial host) at which this *Peridermium* occurs and its very early appearance in the spring will probably explain why it has not been discovered before.

The coleosporial stage occurs at much lower elevations than the aecial since the writer found the rust on *Ribes* plants in Albuquerque (4,950 feet elevation). The coleosporial stage evidently reaches these lower altitudes through the successive infection of the *Ribes* plants throughout the summer months by the urediniospores, thereby materially extending the range of the rust beyond that of its aecial stage.

The coleosporial stage of this rust has been reported on the following species of *Ribes*: *R. grossularia* Linn., *R. inebrians* Lindl., *R. leptanthum* A. Gray, *R. longifolium* Nutt., *R. pumilum* Nutt., *R. purpusii* Koehne, and *R. valicola* Greene, and from three states, Colorado, New Mexico, and Wyoming. The writer has collected this *Coleosporium* on *R. mescalegium* Coville in Amole and La Junta Canyons, Santa Fe National Forest, New Mexico, October, 1914 (F.P. 21162 and 21161) and on *R. longifolium*, Albuquerque, New Mexico, October, 1914 (F.P. 21163).

Pinus edulis, the aecial host, occurs in Colorado, western Texas, eastern Utah, southwestern Wyoming, northern and central Arizona, New Mexico, and southward into Mexico. The known distribution of the coleosporial stage of this rust is, therefore, well within the range of its aecial host (*P. edulis*) and it is very probable that *Peridermium ribicola* will also be found to have practically the same general range.

OFFICE OF INVESTIGATIONS IN FOREST PATHOLOGY,
BUREAU OF PLANT INDUSTRY,
ALBUQUERQUE, NEW MEXICO.

NOTES AND BRIEF ARTICLES

Professor Thomas H. Macbride has been elected president emeritus of the State University of Iowa upon his retirement from the presidency at the age of sixty-eight.

Professor E. J. Durand, of the University of Missouri, spent part of the summer collecting in Wyoming.

Mr. Paul C. Graff has been appointed instructor in botany at the University of Montana, Missoula, Montana. He entered upon his new duties September 15.

Dr. W. A. Murrill has found that *Melanoleuca anomala* Murrill, published in MYCOLOGIA 5: 214. 1913, has pale-yellowish-brown spores instead of hyaline spores, and he therefore transfers the species to the genus *Inocybe*, the new combination being *Inocybe anomala* Murrill.

Dr. Donald Reddick, professor of plant pathology, Cornell University, and chairman of the editorial board of *Phytopathology*, has been granted sabbatic leave and will spend the ensuing academic year in special work in the laboratory of plant physiology, Johns Hopkins University.

Dr. Gertrude S. Burlingham, who contributed the descriptions of *Russula* for volume 9, part 4, of *North American Flora*, finds that *Russula subfragilis* Burl., on page 233, is preoccupied by *R. subfragilis* P. Henn. (in Warb. *Monsunia* 1: 149. 1899), and she suggests *Russula fragiliformis* Burl. as a new name for this species.

We learn from *Science* that Professor J. C. Arthur was assisted during July in the preparation of the remaining parts of the Uredinales for *North American Flora* by F. D. Kern, C. R.

Orton, F. D. Fromme, and C. A. Ludwig, all former members of Dr. Arthur's laboratory staff.

An article recently published by Mr. L. O. Overholts in the *Annals of the Missouri Botanical Garden* contains descriptions and illustrations of four new species of gill-fungi: *Claudopus subnidulans*, *Panaeolus reticulatus*, *P. rufus*, and *P. variabilis*. All of the species were collected by Mr. Overholts in the vicinity of St. Louis, Missouri.

Volume 6 of the *Memoirs* of the New York Botanical Garden contains thirty-seven papers presented at the celebration of the twentieth anniversary, among them "The development of *Lepiota cristata* and *L. seminuda*," by G. F. Atkinson, "Japanese species of *Gymnosporangium*," by F. D. Kern, "Chemotropic reactions in *Rhizopus nigricans*," by A. H. Graves, and "Bermuda fungi," by F. J. Seaver.

Dr. S. M. Stocker, of Duluth, Minnesota, contributes the following note: "On September 7, 1916, I found a specimen of *Pluteus cervinus* so much larger than any heretofore seen by me that I measured it. The outline of the cap was oval, not circular, and the measurements were $9\frac{1}{2} \times 7$ inches. Perhaps this is not unknown, but it seems to me worth letting you know."

A fine fresh specimen of *Thelephora vialis* has been sent in for determination by Mr. Timothy E. Wilcox, of Washington, D. C. It is large, many times lobed, rosy-smoke-colored below and cream-colored to honey-yellow above, with a somewhat disagreeable odor in drying which is very noticeable. Dr. Burt reports a former collection of this species at Washington by Mr. F. J. Braendle.

The July number of the *Journal of Agricultural Research* contains an article on the disease of potatoes known as "leak," by Lon A. Hawkins. The disease usually appears after the crop has been harvested and according to Hawkins is caused by the fungus *Pythium debaryanum* Hesse. *Rhizopus nigricans* Ehrenb.

also causes a rot of potatoes similar to but not identical with this disease.

In the April number of *Phytopathology*, J. E. Howitt and W. A. McCubbin published an account of an outbreak of white-pine blister rust, *Cronartium ribicola*, in Ontario. The *Peridermium* stage has been found on both native and imported white pine and the *Cronartium* stage on five cultivated and four wild species of *Ribes*. Black currants have in several instances suffered severe injury from the disease.

Number four of the second volume of *Illinois Biological Monographs* consists of an account of the Porto Rican species of the genus *Meliola* by Professor F. L. Stevens. The number of species listed is 95, of which 56 are described as new. Six varieties are also recognized, all new. The paper contains five plates, consisting of photomicrographs, the most conspicuous feature of which is the absence of all detail. It is to be lamented that in a paper of this size and importance more time and attention has not been devoted to the matter of illustration.

Among specimens of fungi recently collected in Surinam by Mr. Jacob Samuels are the following: *Amauroderma Chaperi*, *Auricularia Auricula*, *Auricularia nigrescens*, *Cladoderris dendritica*, *Corioloopsis caperata*, *Cycloporellus iodinus*, *Earliella corrugata*, *Elfvigia tornata*, *Elfvigiella fasciata*, *Fomes Auberianus*, *Fomitella supina*, *Fulvifomes extensus*, *Guepinia spathularia*, *Lentinus strigosus*, *Pogonomyces hydroides*, *Rigidoporus surinamensis*, *Stereum elegans*, *Trametes cubensis*.

The University of Illinois Agricultural Experiment Station Bulletin No. 189 contains the results of an extensive study of the parasitic species of *Rhizoctonia* in America. There are at present recognized two parasitic species of this genus, *R. Solani* Kühn and *R. Crocorum* (Pers.) DC. About 165 plants have been listed in the United States as subject to the attacks of *Rhizoctonia Solani*, including many floricultural plants, vegetables, and field crops. The disease produces damping-off of seedlings or rotting

of stems and roots, etc., the nature of the infection being essentially the same in different plants.

Two excellent illustrated papers on the Polyporaceae have been published during the past year by Mr. L. O. Overholts. The first is a treatment of the Polyporaceae of the middle-western United States, which appeared in *Washington University Studies* for July, 1915. The second, entitled comparative studies of the Polyporaceae, was printed in the *Annals of the Missouri Botanical Garden* for November, 1915. Students of this family of fungi should not fail to add these papers to their library.

Professor T. Petch has been studying the sclerotia of *Lentinus* found on stumps of *Hevea*, and he says that in addition to species possessing a true sclerotium, there appear to be others whose mycelium merely binds together the earth in a large compact mass, while *Lentinus similis* and *L. infundibuliformis* exhibit a third type in which the skeleton of the pseudosclerotium consists of the wood of the host plant. It is considered as still an open question whether these types are definitely associated with different species of *Lentinus* or are merely stages which may be assumed by the sclerotium in any given species.

In an article published in the July number of the *American Journal of Botany*, W. B. McDougall makes the following statement regarding mycorrhizal relations existing between mushrooms and the roots of forest trees:

"Three of the species of trees used in the present investigation produce ectotrophic mycorrhizas, the oak (*Quercus*), hickory (*Carya*) and linden (*Tilia*). The mycorrhizas of the oak are due to *Russula foetentula* Pk., those of the linden to *Scleroderma vulgare* Fr., and those of the hickory probably to *Laccaria ochropurpurea* (Berk.) Pk., though this last has not been definitely proven. In all of these cases no mycorrhizas were formed in the spring, but after the first of July mycorrhizas were formed whenever the roots were growing well."

Dr. E. A. Burt's valuable articles on the Thelephoraceae of North America are appearing regularly in the *Annals of the Mis-*

souri Botanical Garden. His fourth article contains a treatment of *Exobasidium* and the fifth a treatment of *Tremellodendron*, *Eichleriella*, and *Sebacina*. The following new species are published in these genera: *Tremellodendron tenue* Burt, collected in Jamaica by Murrill; *T. simplex* Burt, collected in Porto Rico by Johnston; *Eichleriella Schrenkii* Burt, collected in Texas by Schrenk; *E. gelatinosa* Murrill, collected in Jamaica by Murrill and Harris; *Sebacina chlorascens* Burt, collected in Florida by Thaxter; *S. Shearii* Burt, collected in Washington, D. C., by Shear; *S. monticola* Burt, collected in Colorado by Hedgcock; *S. cinnamomea* Burt, collected in Maryland by Shear; *S. adusta* Burt, collected in Idaho by Weir; *S. plumbea* Burt, collected in Washington by Suksdorf; and *S. atrata* Burt, collected in Massachusetts by Farlow. There are also many new combinations.

Preparation of manuscript for the fungous parts of *North American Flora* is proceeding very satisfactorily. Dr. Arthur will soon complete another part on plant rusts. Dr. Seaver will send a part to press within a few months. Mrs. Flora W. Patterson, who is monographing the Exoascales, has received prompt and generous responses to her requests for material and will soon be able to complete her researches in this group. Mr. L. O. Overholts has undertaken the genus *Pholiota*, which he hopes to complete within a year. Dr. C. H. Kauffman has practically completed *Cortinarius* and will now take up *Inocybe*. He would be glad to receive material for the study of this difficult genus. Professor W. C. Coker has undertaken the Clavariaceae and has already spent some time at the Garden and also at Albany studying herbarium material. Professor E. A. Burt will be prepared to publish his researches on the Thelephoraceae in *North American Flora* as soon as the series of papers which he is publishing in the *Annals of the Missouri Botanical Garden* have been completed, which may require two or three years. A part on lichens has been arranged for by the cooperation of Professor Bruce Fink, Professor Lincoln W. Riddle, Professor A. H. Chivers, and Mr. W. C. Barbour.

NORTH AMERICAN FLORA, VOLUME 9

This volume closes with parts 6 and 7, containing a treatment of *Clitocybe* and *Hygrophorus* by W. A. Murrill and a bibliography by J. H. Barnhart. In order to facilitate the use of the volume, the following indexes have been prepared: Index to Families and Tribes, Index to Recognized Genera and Species, Index to Species, and General Index.

As explained in the "Corrections" in part 6, the use of *Leptomyces* in part 5 was an error. The correct name of this genus is: *Hiatula* (Fries) Berk. Ann. Mag. Nat. Hist. II. 9: 193. 1852. The type species is *Agaricus discretus* Fries, and the 5 species described on pages 309 and 310 should be corrected as follows:

1. *Hiatula discreta* (Fries) Sacc. Syll. Fung. 5: 307. 1887.
2. *Hiatula minima* Berk. Ann. Mag. Nat. Hist. II. 9: 193. 1852.
3. *Hiatula ciliatula* (Fries) Sacc. Syll. Fung. 5: 306. 1887.
4. *Hiatula purpurascens* Berk. & Curt. Jour. Linn. Soc. 10: 293. 1868.
5. *Hiatula Bensonii* (Fries) Sacc. Syll. Fung. 5: 305. 1887.

AN EXPERIMENT WITH *PANAEOLUS PAPILIONACEUS*

The following note was recently received from Mr. J. E. Fries, of Ampere, New Jersey:

"Last Sunday morning I had great difficulty in finding any mushrooms whatever, so I was happy when I finally came across a few specimens of *Coprinus* mixed in with a few of *Panaeolus papilionaceus*. I have never tried this last mushroom, but, as Mr. McIlvaine says that in small quantities they are harmless and contain a very mild intoxicant only, I did not hesitate to let them join the *Coprini* in the pot. The results, however, were very startling. Mrs. Fries could not possibly have eaten more than two or three of the caps and yet she exhibited all the signs of violent opium poisoning only five or six minutes after having eaten this mushroom. For a while she had difficulty in breathing and all the sensations in the brain described under acute opium poisoning. Drowsiness crept over her, but we took a walk and in about three to four hours it was all over save for a great feeling of weakness.

"I ate about five times as much as Mrs. Fries and in the beginning felt nothing. It took between one and two hours before the poisoning took effect on me. My respiratory organs were not affected at all, but for several hours, in fact, lasting from about 3 o'clock in the afternoon until 8 o'clock at night, I had all the queer mental as well as 'moral' sensations described in the 'Confessions of an Opium Eater.'

"If such small quantities of this mushroom can act so powerfully, it seems to me dangerous in the extreme to speak of its qualities in such light manner as Mr. McIlvaine does and I think the public should be strongly warned against using this species at all."

Lamprospora detonia sp. nov.

Plants scattered, 5 to 12 mm. in diameter, sessile, plate-like, with margins elevated about 0.7 mm., slightly incurved and free from substratum, regular in form, becoming convolute on drying; hymenium smooth, concave to plane, dark-brown to black with a green tint, the margin distinct and raised about 0.1 mm. from the apothecium, externally brown, rough and verrucose; asci cylindrical, about 15μ in diameter, up to 300μ long, hyaline; spores 8, 1-seriate, crowded into the upper third or one fourth of the ascus, at first smooth, with a large oil-globule, dilutely colored, becoming minutely warted, brown and opaque so as to appear black under the microscope, 12 to 15μ in diameter; paraphyses slender, yellowish, the apex thickened and colored.

Among moss on shaded ground, in woods on the banks of the Cheyenne River, near Anselm, N. Dak. This species differs from *L. trachycarpa* by the greenish tint of the hymenium and the smaller, minute, wart-like markings of the spores. When the plants are first raised from the shaded ground into sunlight, in a moment, a discharge of spores takes place. A small dust-cloud almost an inch high shoots up from the hymenium. The phenomenon may be explained by the warming and expansion of the air or gases in the lower two thirds of the asci. The spores, crowded into the upper end, are pressed against the operculum until it gives way and are then shot into the air.

J. F. BRECKLE.

INDEX TO AMERICAN MYCOLOGICAL LITERATURE

- Allard, H. A.** Some properties of the virus of the mosaic disease of tobacco. *Jour. Agr. Research* **6**: 649-674. *pl. 91*. 24 Jl 1916.
- Briggs, L. J., Jensen, C. A., & McLane, J. W.** Mottle-leaf of *Citrus* trees in relation to soil conditions. *Jour. Agr. Research* **6**: 721-740. *pl. H, 96, 97 + f. 1-4*. 7 Au 1916.
- Burnham, S. H.** The admirable *Polyporus* in the flora of the Lake George region. *Torreya* **16**: 139-142. 15 Je 1916.
- Cook, M. T., & Lint, H. C.** Potato diseases in New Jersey. *New Jersey Agr. Exp. Sta. Circ.* **53**: 1-23. *f. 1-9*. 1916.
- Coons, G. H., & Levin, E.** The *Septoria* leaf spot disease of celery, or celery blight. *Michigan Agr. Exp. Sta. Special Bull.* **77**: 1-8. *f. 1-9*. Mr 1916.
- Douglas, G. E.** A study of development in the genus *Cortinarius*. *Am. Jour. Bot.* **3**: 319-335. *pl. 8-13 + f. 1*. 15 Jl 1916.
- Duggar, B. M.** *Rhizoctonia Solani* in relation to the "Moppilz" and the "Vermehrungspilz." *Ann. Missouri Bot. Gard.* **3**: 1-10. F 1916.
- Duggar, B. M.** The Texas root rot fungus and its conidial stage. *Ann. Missouri Bot. Gard.* **3**: 11-23. *f. 1-5*. F 1916.
- Durfee, T.** Lichens of the Mt. Monadnock region, N. H.—No. 7. *Bryologist* **19**: 65, 66. Jl 1916.
- Erwin, A. T.** Late potato blight in Iowa. *Iowa Agr. Exp. Sta. Bull.* **163**: 287-305. *f. 1-8*. Ap 1916.
- Evans, A. W.** Lichens and Bryophytes at Cinchona. *Science* **II**. **43**: 918. Je 1916.
- Gilman, J. C.** Cabbage yellows and the relation of temperature to its occurrence. *Ann. Missouri Bot. Gard.* **3**: 25-82. *pl. 1, 2 + f. 1-21*. F 1916.
Cabbage yellows caused by *Fusarium conglutinans*.
- Gloyer, W. O., & Fulton, B. B.** Tree crickets as carriers of *Lep-*

- tosphaeria coniothyrium* (Fckl.) Sacc. and other fungi. N. Y. Agr. Exp. Sta. Tech. Bull. 50: 3-22. *pl.* 1-4. Mr 1916.
- Graff, P. W.** Basidiomycetes collected in Indo-China by C. B. Robinson. *Mycologia* 8: 214-217. 15 Jl 1916.
- Grose, L. R.** The alternate hosts of the white pine blister rust. *Am. Forestry* 22: 469-471. Au 1916. [Illust.]
- Harder, E. C.** The occurrence of bacteria in frozen soil. *Bot. Gaz.* 61: 507-517. *f.* 1, 2. 15 Je 1916.
- Harter, L. L.** Storage-rots of economic aroids. *Jour. Agr. Research* 6: 549-572. *pl.* 81-83 + *f.* 1. 10 Jl 1916.
- Hawkins, L. A.** The disease of potatoes known as "leak." *Jour. Agr. Research* 6: 627-640. *pl.* 90 + *f.* 1. 24 Jl 1916.
- Jones, D. H.** Some bacterial diseases of vegetables found in Ontario. Ontario Dept. Agr. Bull. 240: 1-24. *pl.* 1-10. Je 1916.
- Howitt, J. E.** Grape diseases. Ontario Dept. Agr. Bull. 237: 44-48. Mr 1916.
- Levin, E.** The leaf-spot disease of tomato. Michigan Agr. Exp. Sta. Tech. Bull. 25: 1-51. *pl.* 1-9 + *f.* 1, 2. Mr 1916.
- Lloyd, C. G.** Mycological notes, 42: 574-588. *f.* 808-829. Je 1916.
- Murphy, P. A.** The black leg disease of potatoes caused by *Bacillus Solanisaprus* Harrison. Canada Dept. Agr. Exp. Farms Circ. 11: 1-8. *f.* A-D. 1916.
- Murphy, P. A.** Late blight and rot of potatoes. Canada Dept. Agr. Exp. Farms Circ. 10: 1-13. *f.* A, B. 1916.
"Caused by the fungus *Phytophthora infestans*, de Bary."
- Murrill, W. A.** (Agaricales) Agaricaceae (pars). *Agaricaceae* (pars). N. Am. Fl. 9: 297-374. 7 Je 1916.
Includes *Geopetalum albescens*, *G. geophilum*, *G. subelatinum*, *G. tremelliforme*, *G. subhaedinum*, *Micromphale badium*, *Omphalopsis translucetipes*, *O. turbinata*, *O. pseudogrisea*, eleven other new species in this genus and 53 in *Prunulus*, 15 in *Omphalina* and 44 in *Gymnopus*.
- Murrill, W. A.** Edible and poisonous mushrooms. 1-76. *Colored Chart*. New York. 26 Je 1916.
- Murrill, W. A.** Illustrations of fungi—XXIV. *Mycologia* 8: 191-194. 15 Jl 1916.
The following species are illustrated in color: *Lactaria atroviridis*, *L. hygrophoroides*, *L. testacea*, sp. nov., *L. maculosa* sp. nov. and *L. torminosa*.

- Murrill, W. A.** *Pleurotus, Omphalia, Mycena, and Collybia*, published in North American Flora. *Mycologia* 8: 218-221. 15 Jl 1916.
- Norton, J. B. S.** Internal action of chemicals on resistance of tomatoes to leaf diseases. Maryland Agr. Exp. Sta. Bull. 192: 17-30. f. 1. Ja 1916.
- Olive, E. W.** Report of a trip to study and collect rusts and other parasitic fungi of Porto Rico. Brooklyn Bot. Gard. Record 5: 117-122. f. 8. Jl 1916.
- Orton, C. R.** The diseases of the potato. Pennsylvania Agr. Exp. Sta. Bull. 140: 4-37. f. 1-23. My 1916.
- Overholts, L. O.** New or interesting species of gill fungi from Missouri. Ann. Missouri Bot. Gard. 3: 195-200. pl. 6 + f. 1. F 1916.
Includes *Claudopus subnidulans*, *Panaeolus reticulatus*, *P. rufus*, and *P. variabilis*, spp. nov.
- Peltier, G. L.** Parasitic Rhizoctonias in America. Illinois Agr. Exp. Sta. Bull. 189: 283-390. f. 1-23. Je 1916.
- Peltier, G. L.** A serious disease of cultivated perennials caused by *Sclerotium Rolfsii*. Illinois Agr. Exp. Sta. Circ. 187: 1-3. f. 1. Jl 1916.
- Pratt, O. A.** A western fieldrot of the Irish potato tuber caused by *Fusarium radiculicola*. Jour. Agr. Research 6: 297-310. pl. 34-37. 29 My 1916.
- Price, D. J., & McCormick, E. B.** Dust explosions and fires in grain separators in the Pacific northwest. U. S. Dept. Agr. Bull. 379: 1-22. pl. I-II. 4 Au 1916.
- Rand, F. V., & Enlows, E. M. A.** Transmission and control of bacterial wilt of cucurbits. Jour. Agr. Research 6: 417-434. pl. 53, 54 + f. 1-3. 12 Je 1916.
- Rangel, E.** Contribuição para o estudo dos Puccinias das Myrta-ceas. Archiv. Mus. Nac. Rio de Janeiro, 18: 147-156. pl. 1-4. 1916.
Includes descriptions and illustrations of four new species.
- Rangel, E.** Fungos do Brazil, novos ou mal conhecidos. Archiv. Mus. Nac. Rio de Janeiro, 18: 157-164. pl. 5-7. 1916.
Includes descriptions of fifteen new species in *Puccinia* (1), *Uromyces* (3),

Uredo (4), *Mycosphaerella* (1), *Laestadia* (2), *Phyllosticta* (1), *Coniothyrium* (1), *Septogium* (1), *Cercospora* (1), and *Phaeophleospora eugeniae* gen. et sp. nov.

Reed, G. B. The powdery mildews of *Avena* and *Triticum*. Missouri Agr. Exp. Sta. Research Bull. 23: 1-19. Je 1916.

Rosen, H. R. A known species of smut on a new host. Mycologia 8: 225, 226. 15 Jl 1916.

Cintractia leucoderma on *Cyperus Gatesii*.

Rumbold, C. Pathological anatomy of the injected trunks of chestnut trees. Proc. Am. Philos. Soc. 55: 485-493. pl. 15-18. 10 Jl 1916.

Saccardo, P. Notae mycologicae, Series XX. Nuovo Giorn. Bot. Ital. 23: 185-234. Ap 1916.

Includes *Meliola pitya*, *Chorostate Peckiana*, *Hypoderma tenellum*, *Phaeangium Peckianum*, spp. nov., and *Microascus americanus* gen. et sp. nov.

Schultz, E. S. Silver-scurf of the Irish potato caused by *Spondylocadium atrovirens*. Jour. Agr. Research 6: 339-350. pl. 45-48. 5 Je 1916.

Seaver, F. J. Photographs and descriptions of cup-fungi—III. *Peziza domiciliana* and *Peziza repanda*. Mycologia 8: 195-199. pl. 188, 189. 15 Jl 1916.

Smith, E. F. Further evidence as to the relation between crown gall and cancer. Proc. Nat. Acad. Sci. 2: 444-448. Au 1916.

Smith, E. F. Further evidence that crown gall of plants is cancer. Science II. 43: 871-889. 23 Je 1916.

Smith, E. F. Studies on the crown gall of plants; its relation to human cancer. Jour. Cancer Research 1: 231-309. pl. 1-25. Ap 1916.

Spaulding, P. The white-pine blister rust. U. S. Dept. Agr. Farmers' Bull. 742: 1-15. pl. 1 + f. 1-4. 9 Je 1916.

Stakman, E. C., & Tolaas, A. G. Fruit and vegetable diseases and their control. Minnesota Agr. Exp. Sta. Bull. 153: 7-67. f. 1-32. Ja 1916.

Stakman, E. C., & Tolaas, A. G. Potato diseases and their control. Minnesota Agr. Exp. Sta. Bull. 158: 7-47. f. 1-28. F 1916.

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